

Notes on *Moloch horridus*. By C. A. WILSON, Esq., F.L.S.

[Read Dec. 5, 1867.]

I SEND some notes or remarks on that singular Lizard the *Moloch horridus* of Gray, called by the colonists the "Spiny Devil" or "Spiny Lizard." These notes I was about to forward in June or July 1866, but paused to see if I could obtain some further information about these curious reptiles. This I did not receive, as the creatures were not noticed again that year; but I was promised one or two specimens (alive if possible) when their mouth came round again, which appears to be April, when they are first discovered moving about. This promise has lately been fulfilled; and I will allude to it again before concluding.

The habits of these Lizards being as yet but imperfectly known, reliable observations respecting them are scanty. The following *memoranda* consequently may be divided into the *true* and the *uncertain*, the latter having been furnished by persons in whom I can fully believe, but who themselves may have obtained their information from questionable sources, and therefore of doubtful authenticity. It should be stated that my own observations were made on individuals in a state of confinement.

The first record or account I had of this singular creature, was that contained in Sir George Grey's work, 'Expeditions &c. in North-west and West Australia,' vol. ii. Appendix, p. 441. I heard no more of the subject till about the year 1849 or 1850, when a pair of stuffed specimens were exhibited in Adelaide, said to have come from the far interior in a north-west direction. These were the first specimens of the real animal I had seen, and they were small as compared with those figured in Sir G. Grey's work. His figure, however, is a magnified one, as he states the length to be $4\frac{1}{2}$ inches. (He says, however, the "body," perhaps meaning thereby without the tail.) Accounts were afterwards received of others being taken alive north of Adelaide, but not so far distant as before, and within the limits of our province; but I did not see any of these. The next report was in 1863, of their having been observed somewhere in the neighbourhood of Port Augusta (Spencer's Gulf, N.E.); and at the end of the summer 1864-5 several were taken there. The greater part of these were at once preserved in spirits, but others were kept alive for a time, and in the possession of Mr. F. G. Waterhouse, the curator of the Ade-

laide museum, who brought them on his return after an attempt, ineffectual on account of the drought and want of feed for horses, to reach the country of the *Diprotodon* *. Mr. Waterhouse could not induce the Lizards to eat while in confinement, of which I shall have more to say shortly, and he had to bottle them like all the others.

My father-in-law, Mr. Stephen King, went to live at Port Augusta as special magistrate in December 1865 † ; and in April 1866 (last year) I received from him four of these *Molochs* alive, first one, and then three together, in a box with some sand. They came by *book post*, rather frightening the postman, who declared that "the parcel moved." They all reached me quite uninjured, being defended from the sides of the box and from each other (though they must have had much jolting on the way) by the spines with which their bodies are entirely covered,—these spines yielding a little with the skin on pressure, but not breaking. Hoping I should be able to entice them to eat, though I had heard before that they did not do so, I kept those first received a month, and the rest about three weeks ; but as they took no notice whatever of any kind of food, and as they appeared at the end of this time to be growing weaker, I put them in methyated spirit, where they died almost immediately.

From my notes I give the following particulars :—The total length of each of the specimens I have had (about nine in number) has been over $5\frac{1}{2}$ inches, some having attained $6\frac{1}{2}$ inches, and a few a trifle more (the largest is about 7 inches). The tail has never been so blunt nor so rounded as that in Sir G. Grey's figure, but more pointed. The markings as described by him seem similar to those on my specimens, and, as he says, are "very definite, &c., but not easily described." The parts that he speaks of as yellow are in our specimens more of an ochre-colour, and the dark or brown parts are marked with darker streaks of the same colour. These differences in size (if so), shape, and colour between west and south specimens may arise from locality, climate, food, &c. Two other little points to notice in reference to Sir G. Grey's remarks are that the animal certainly is ferocious in appearance,

* Some printed remarks upon the remains of this gigantic extinct Marsupial I sent to the Linnean Society about two years ago.

† Mr. King had been one of the party at the unsuccessful Northern Territory Settlement; and his son, Stephen King, Jun., was also there, and had previously crossed the Australian continent under J. M. Stuart.

but in no other respect, and that all the specimens I received or saw in 1866 (about eighteen in number) had the spined protuberance at the back of the neck.

The three Lizards last received I kept always together in an airy wooden box, with plenty of sand at the bottom. I took several daily looks at them, and could not but remark their continued *apathy* to everything around them and to each other, the sudden introduction of light, among other things, seeming to make no difference. There was in this respect, as well as in outward appearance, so far as I then knew, nothing to indicate their sex. They kept their heads raised on a line with their bodies, and remained motionless for hours together. This was not from weakness or failing strength, as when either of them was raised up separately by the hand (that is, by a finger and thumb on the spines at the sides of the body, the spines not being sharp enough to pierce the fingers) they still remained motionless; but an attempt to turn them over always failed, as they would immediately begin to curve themselves slowly, but strongly and stiffly, round or up again. They never seemed to be at all on the watch, as it were; but I have placed this fact, from what I have heard from others, among my *doubtful* points, as I only gave them short intervals to escape in, for fear of losing them. The only noise produced by either of them was after a long interval of silence, by scratching at the sides of their wooden box with their armed feet or claws; but this they never did while I was observing them.

All attempts to make them eat were ineffectual, as before remarked. They were supplied with living and dead insects (which are said to form their food) both day and night. Sugar &c. also was given, in case they should, as so many animals do, fancy sweet things; but each and all appeared to be regarded with the same indifference as everything else. However, they did not diminish in size, nor apparently, for some weeks, in strength. It was not a warm time of the year; still they were supplied with water; but this was also left untouched. I fancy, therefore, that they can, if necessary, bear without injury a long fast.

Among the facts ascertained from observation and reliable information, one is that these Lizards are perfectly *harmless*; that is, on no occasion do they attempt to bite or scratch; and with this knowledge I have continually taken them up by hand and examined them. The mouth of the animal is very small; and

it is apparently unable to bite ; and I have no reason to think that, if it did so, any unpleasant consequences would follow.

The animals *changed colour* frequently while I had them, from their original bright hues to a dull slate- or soot-colour, under which their markings were but dimly seen. This I often observed. About the time (or soon after) I received the three together, mentioned in my last paper, one, I remarked, was darker than the others, more clouded in its colours, and of quite a dingy appearance.

The change of hue never occurred suddenly, or while the creature was being looked at ; but after a long interval (say, after a day or a night had passed) I observed the alteration. I at first thought this change might arise from confinement or weakness ; but as, when looked at again after an interval, all three individuals were as bright as ever, this could not be the cause. In this and their slow and languid movements these Lizards, perhaps, most resemble the Chameleon ; and there are, I fancy, other points of similarity between them. The change of colour may be a sexual one ; but they took no more notice, to all appearance, of objects around them, or of each other, while these changes were occurring, than before.

When immersed in spirits of wine, whether living or just dead, all assumed their brightest hues : though, just previously to this, none were of the *most* dingy colour (that is, to its fullest extent), yet at this time, or just before immersion, some were duller than others, but all became, when put into the spirits, of their liveliest tints. At this treatment the strongest hardly moved at all, as if the liquid directly took effect.

They are *diurnal* reptiles only—that is, not abroad at night. There are some exceptions to this ; one may be when their prey (if ants) on moonlight nights is on the move. The eye is not suited for nocturnal excursions, being small and deeply set.

As to sex, subsequent observation has given a hint or two. In April last I received three more of the Molochs in a box, and per post as before, from Port Augusta. They were not alive, having died from an accident the day before “posting ;” but decomposition had fortunately only just commenced. They had been left out in the sun in their box or cage for a whole day, and forgotten till evening. The solar heat must have caused their death, much to the regret of their captors. Of these three Lizards, two were without any spines on the singular ball-like protuberance on the neck ; the other had a pair of spines there as usual. The animals

were similar in colour, size, and markings. My informant believes the spineless ones were females, but gives no other reasons than the above difference. All those previously received by me, and others that I had seen, possessed the spines.

These Lizards are now found in various parts of Port Augusta and neighbourhood, and are very partial to sandy spots, two or three being, it is said, occasionally seen together on the tops of the small sandhills near the Gulf. They frequently bury themselves under the sand to a little depth. What are supposed to be their eggs have been found, and are described as large for the size of their owners, and white, like most of those of other Lizards.

On the following statements about these *Molochs* I cannot place so much reliance as on the foregoing; they are at least of a doubtful character, though each is probably mixed up with a portion of truth.

It has been stated:—1. That though usually of a sluggish nature and always so in confinement (which is agreed to), yet they have been known, when placed on a table or on the ground, free and unrestricted, and after a time, when they fancied they were not observed, to run off with great rapidity to some hole or corner. This does not seem unlikely; but I cannot get any certain answers to questions about it, though I should think their habits in their native wilds would partly guide the observer.

I must own I never gave my specimens an opportunity for a *run*; for I was afraid of losing them, though they never evinced any inclination to be off.

2. That other things (besides ants), animal and vegetable, are eaten by the *Molochs*; and some of these are specified; but, except "insects generally," it is not worth while to notice them.

3. That they have been known to change colour *suddenly*, or while held in the hand. This I strongly doubt.

4. That they are *nocturnal* in habits. For reasons before given I think this very doubtful; but the bright moonlight may probably entice them abroad.

5. That they lay (each female) several eggs in one day. This, I think, is entirely without foundation; nor do I believe that any one has yet seen any female *Moloch* in the act of laying, or examined the place where the eggs were deposited soon after they were so. I should not mention the above items were they not stated to be from good authority. In the matter of the *general* inactivity and harmlessness of the reptile all agree.